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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,588	12/11/2003	Giora Biran	FIS920030288US1	8232

23550 7590 11/19/2007

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EXAMINER	
CHAUDRY, MUJTABA M	
ART UNIT	**PAPER NUMBER**
2112	

MAIL DATE	DELIVERY MODE
11/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/733,588	BIRAN ET AL.	
	Examiner	Art Unit	
	Mujtaba K. Chaudry	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9,11-17,19 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9,11-13,15-17,19 and 20* is/are rejected.

7)☒ Claim(s) *14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicants' response was received August 23, 2007.

- Claims 9, 11-13, 15-17, 19 and 20 are pending and stand rejected.
- Claim 14 is objected to as containing allowable subject matter.

Application pending.

Response to Amendment

Applicant's arguments with respect to claims 9, 11-17, 19 and 20 filed August 23, 2007 have been received. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 9, 11-13, 15-17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elzur (USPN US 20030172342 A1) in view of Applicants Admitted Prior Art (AAPA) further in view of Clayton et al. (herein after: Clayton, USPAP 2004/0123013A1).

As per claim 9, Elzur substantially teaches systems and methods that identify the Upper Layer Protocol (ULP) message boundaries. In one example, a method that identifies ULP message boundaries is provided. The method may include one or more of the following steps: attaching a framing header of a frame to a data payload to form a packet, the framing header being placed immediately after the byte stream transport protocol header, the framing header comprising a length field comprising a length of a framing protocol data unit (PDU); and inserting a marker in the packet, the marker pointing backwards to the framing header and being inserted at a preset interval. Elzur teaches (Figures 4-5) the TCP frame 50 may include, for example, a TCP header 60; a framing header 70; one or more markers 80; a framing trailer 90 possibly including, for example, a pad or a cyclical redundancy checking (CRC); and a payload 100 that may include, for example, ULP data. FIG. 4 shows an embodiment in which one marker 80 is inside the TCP frame 50 and FIG. 5 shows an embodiment in which two markers 80 are inside the TCP frame 50. Although shown with one or two markers 80 inside the TCP frame 50, zero, three or more markers may be present inside the TCP frame 50. The TCP header 60 may be a conventional TCP header 60 and may provide, for example, location information within the TCP sequence number space. The CRC 90 may optionally be employed for error detection. The CRC 90 may cover, for example, the framing header 70, the one or more markers 80, the payload 100 and the pad, if present. Other types of error detection or error correction may also be used instead of or in addition to the CRC 90. Elzur also teaches (Figures 10a-d) the receiver 30 may place the ULPDU data in that memory location with out placing the pad bytes (e.g., 0-3 bytes). In query 300, if the CRC does not match per the check done by the receiver 30, then, in query 360, the receiver 30 may determine whether the TCP layer processing has been

done for the particular segment, which may be the case for layered implementation with no change to the TCP. If the TCP processing is done for that TCP segment 50, then, in step 370, the receiver 30 may tear down the TCP connection. There may be no way to recover from this error that has been detected by the stronger CRC employed by the framing layer, but that may have slipped through the less rigorous test of the TCP checksum. AAPA teaches (page 3 and figure 1b) the transmission control protocol 104 schedules outbound segments 106 and satisfies delivery and includes a MPA frame in the marker.

Elzur and AAPA do not explicitly teach to calculate TCP checksum and CRC in parallel as stated in the present application.

However, Clayton teaches, in an analogous art, (abstract) a data transfer system comprising a first bus interface, a second bus interface, a first-in-first-out memory, a controller and a message unit. The message unit is operable to queue a plurality of data transfer request messages from the first bus interface and the second bus interface. The controller is operable to process each data transfer request message and transfer data between the first bus interface, the first-in-first-out memory and the second bus interface. The controller is configured to calculate error detection codes (EDCs) and chain EDC values. Particularly, Clayton teaches (i.e., paragraph 0011) to calculate CRC and TCP checksum in parallel. Therefore if would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the calculation of CRC and TCP checksum in parallel. This modification would have been obvious to one of ordinary skill in the art because one of ordinary skill in the art would have recognized that by calculating CRC and TCP checksum in parallel would have significantly decreased overhead and eased synchronizing processes (i.e., Clayton, paragraphs 007-0009).

As per claim 11, Elzur substantially teaches, in view of above rejections, (Figures 10a-d) in step 250, the receiver 30 may then locate the marker 80 in the TCP frame 50. The receiver 30 may obtain TCP sequence number information from the TCP header for the TCP frame 50. In addition, to locate the marker 80, the receiver 30 may subtract the initial non-zero value of the TCP sequence number for the first TCP payload byte in that particular TCP stream. The receiver 30 may then perform a modulo operation on the TCP sequence numbers using the preset interval at which the marker 80 is located. The receiver 30 need not locate all markers, if more than one is present, since using the one marker may be sufficient. In query 260, the receiver 30 may determine whether a marker is present inside the TCP segment 50. If present, then, in step 270, the receiver 30 may locate the framing header 70 using the information stored in the marker 80.

As per claim 12, Elzur substantially teaches, in view of above rejections, (Figure 10a) the receiver 30 may place the ULPDU data in that memory location with out placing the pad bytes (e.g., 0-3 bytes).

As per claim 13, Elzur substantially teaches, in view of above rejections, (page 5) the receiver 30 may determine location information within the TCP sequence number space from the TCP headers 60. In one example in which the marker 80 is placed every 512 bytes in the TCP stream, the receiver 30 may perform a modulo 512 operation to locate the marker80. As the TCP sequence space may start from a non-zero value, which may vary from one TCP connection to another TCP connection, the preset interval may be calculated by subtracting the initial non-zero value from the TCP sequence number carried inside the TCP header and performing a modulo 512 on the result.

As per claims 15 and 16, Elzur substantially teaches, in view of above rejections, (Figures 4-5) the TCP frame 50 may include, for example, a TCP header 60; a framing header 70; one or more markers 80; a framing trailer 90 possibly including, for example, a pad or a cyclical redundancy checking (CRC); and a payload 100 that may include, for example, ULP data. FIG. 4 shows an embodiment in which one marker 80 is inside the TCP frame 50 and FIG. 5 shows an embodiment in which two markers 80 are inside the TCP frame 50. Although shown with one or two markers 80 inside the TCP frame 50, zero, three or more markers may be present inside the TCP frame 50.

As per claim 17, Elzur substantially teaches systems and methods that identify the Upper Layer Protocol (ULP) message boundaries. In one example, a method that identifies ULP message boundaries is provided. The method may include one or more of the following steps: attaching a framing header of a frame to a data payload to form a packet, the framing header being placed immediately after the byte stream transport protocol header, the framing header comprising a length field comprising a length of a framing protocol data unit (PDU); and inserting a marker in the packet, the marker pointing backwards to the framing header and being inserted at a preset interval. Elzur teaches (Figures 4-5) the TCP frame 50 may include, for example, a TCP header 60; a framing header 70; one or more markers 80; a framing trailer 90 possibly including, for example, a pad or a cyclical redundancy checking (CRC); and a payload 100 that may include, for example, ULP data. FIG. 4 shows an embodiment in which one marker 80 is inside the TCP frame 50 and FIG. 5 shows an embodiment in which two markers 80 are inside the TCP frame 50. Although shown with one or two markers 80 inside the TCP frame 50, zero, three or more markers may be present inside the TCP frame 50. The TCP header 60

may be a conventional TCP header 60 and may provide, for example, location information within the TCP sequence number space. The CRC 90 may optionally be employed for error detection. The CRC 90 may cover, for example, the framing header 70, the one or more markers 80, the payload 100 and the pad, if present. Other types of error detection or error correction may also be used instead of or in addition to the CRC 90. Elzur also teaches (Figures 10a-d) the receiver 30 may place the ULPDU data in that memory location with out placing the pad bytes (e.g., 0-3 bytes). In query 300, if the CRC does not match per the check done by the receiver 30, then, in query 360, the receiver 30 may determine whether the TCP layer processing has been done for the particular segment, which may be the case for layered implementation with no change to the TCP. If the TCP processing is done for that TCP segment 50, then, in step 370, the receiver 30 may tear down the TCP connection. There may be no way to recover from this error that has been detected by the stronger CRC employed by the framing layer, but that may have slipped through the less rigorous test of the TCP checksum. AAPA teaches (page 3 and figure 1b) the transmission control protocol 104 schedules outbound segments 106 and satisfies delivery and includes a MPA frame in the marker.

Elzur and AAPA do not explicitly teach to calculate TCP checksum and CRC in parallel as stated in the present application.

However, Clayton teaches, in an analogous art, (abstract) a data transfer system comprising a first bus interface, a second bus interface, a first-in-first-out memory, a controller and a message unit. The message unit is operable to queue a plurality of data transfer request messages from the first bus interface and the second bus interface. The controller is operable to process each data transfer request message and transfer data between the first bus interface, the

first-in-first-out memory and the second bus interface. The controller is configured to calculate error detection codes (EDCs) and chain EDC values. Particularly, Clayton teaches (i.e., paragraph 0011) to calculate CRC and TCP checksum in parallel. Therefore if would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the calculation of CRC and TCP checksum in parallel. This modification would have been obvious to one of ordinary skill in the art because one of ordinary skill in the art would have recognized that by calculating CRC and TCP checksum in parallel would have significantly decreased overhead and eased synchronizing processes (i.e., Clayton, paragraphs 007-0009).

As per claim 19, Elzur substantially teaches, in view of above rejections, (Figure 10a) the receiver 30 may place the ULPDU data in that memory location with out placing the pad bytes (e.g., 0-3 bytes).

As per claim 20, Elzur substantially teaches, in view of above rejections, (page 5) the receiver 30 may determine location information within the TCP sequence number space from the TCP headers 60. In one example in which the marker 80 is placed every 512 bytes in the TCP stream, the receiver 30 may perform a modulo 512 operation to locate the marker80. As the TCP sequence space may start from a non-zero value, which may vary from one TCP connection to another TCP connection, the preset interval may be calculated by subtracting the initial non-zero value from the TCP sequence number carried inside the TCP header and performing a modulo 512 on the result.

Allowable Subject Matter

Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additional pertinent prior arts are included herein for Applicant's review.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mujtaba K. Chaudry whose telephone number is 571-272-3817. The examiner can normally be reached on Mon-Fri 9-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques can be reached on 571-272-6962.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mujtaba Chaudry
Art Unit 2112
October 23, 2007